

nuclear testing. Seismology provides the principal means for verification, but the task is complicated by the claim that a state might seek to cheat by concealing the explosion — for example, in a large underground cavity which could muffle the seismic shock wave. Although there is a range of scientific opinion concerning the lowest reliable level of detection, it is generally agreed that a comprehensive or very low yield test ban will require an international system of seismic stations, combined with on-site inspections and non-seismic detection systems. The development of such a network could precede actual agreement on further test bans.

Given that the current policy of the United States appears to preclude early negotiations on a comprehensive test ban, the study addresses the question of what kind of restrictions might be more meaningful than those already agreed upon in the test limitation treaties referred to above. It is argued that, from an arms control point of view, an effective yield limitation would have to set the threshold low enough to preclude the development of new weapon designs. A threshold of one kiloton would meet this requirement, with an additional one or two tests up to five kilotons permitted to provide for reliability testing of stockpiled weapons. A ceiling of one kiloton would preclude controversy over the military significance and verifiability of sub-kiloton tests, thereby reducing the incentive to cheat and the rate of 'false' alarms that might take place under a total ban.

// A very low yield threshold test ban of this kind would preclude or significantly limit the freedom to develop new weapon designs. Building on the verification procedures already accepted under the earlier treaties, the network of seismic verification stations described above, combined with on-site inspections and other verification procedures, would provide reasonable assurance of compliance. A very low threshold test ban would not replace but pave the way for the ultimate goal of a complete and universal prohibition on nuclear weapon tests.